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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/662,317

09/16/2003

Chan Young Park

K-0542

1802

34610

7590

03/14/2005

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EXAMINER

VU, PHU

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/662,317	Applicant(s) PARK ET AL.	
	Examiner Phu Vu	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 4- 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crawford et. al 5875012 and futher in view of Inbar et. al US Patent No. 5835173.

Regarding claims 1 - 2 and 5, Crawford teaches three independently driven liquid crystal panels having hologram patterns formed by an undisclosed method (see figure's 1a—shows 1 panel and 4 shows stack of 3 panels). Crawford does not disclose a specific a display panel using a liquid crystal panel comprising: first and second data lines formed in line in the same direction, the second data lines overlapping with upper parts of the first data lines first and second scanning lines formed in line in a direction perpendicular to the first and second data lines, the second scanning lines overlapping with upper parts of the first scanning lines and pixels between the first scanning lines and the first data lines, between the first data lines and the second scanning lines, and between the second scanning lines and the second data lines, respectively. Inbar teaches a passive matrix display using a set of scan and data lines that cross to form a pixel, a driving unit for the scan and data lines (fig. 7 elemnts 48 and 46) and a control unit (fig. 7 element 34) for controlling the driving unit to drive

the liquid crystal panel pixels in order to produce an image. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill to use a set of crossing scan and data lines that form, a control unit, and driving unit to drive each panel to create an image forming display.

Regarding claim 4, the primary reference teaches three panels one for each color. Therefore each of the holographic patterns will be different (see column 4 line 54-column 5 line 12).

Regarding claim 6, the primary reference teaches three liquid crystal panels where each panel is dedicated to a particular color (see column 4 line 54-column 5 line 12).

Regarding claim 7, the primary reference teaches liquid crystal (figs. 2a-2c and 3a-3d element 22) and a monomer (surrounding liquid crystal) arranged in a band shape.

Regarding claim 8, a band shaped liquid crystal as in claim 7 will produce a band shaped interference pattern. A hologram, which the primary reference discloses, is defined as being formed by interference between laser reference light and irradiated light therefore all the new limitations of claim 8 are already met by claim 7 and the primary reference.

Claims 3, 9, 10, 12, 13 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crawford et. al 5875012, and further in view of Inbar et. al US Patent No. 5835173 and further in view of Fukuzawa US Patent 6,295,106.

Regarding claims 9, 10 and 14, Crawford teaches a display system having three

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independently driven liquid crystal panels having hologram patterns formed by an undisclosed method (see figure's 1a—shows 1 panel and 4 shows stack of 3 panels). Crawford also does not explicitly teach a display panel for displaying an image by selectively adjusting color and quantity of light in accordance with an input image signal, however Crawford does teach forming color images, which are formed by adjusting color and quantity of light in according to an input signal. Crawford also does not teach the display panel comprising first and second data lines formed in line in the same direction, the second data lines overlapping with upper parts of the first data lines, first and second scanning lines formed in line in a direction perpendicular to the first and second data lines, the second scanning lines overlapping with upper parts of the first scanning lines, liquid crystals having hologram patterns formed between the first scanning lines and the first data lines, between the first data lines and the second scanning lines, and between the second scanning lines and the second data lines. However Inbar teaches a passive matrix display using a set of scan and data lines that cross to form a pixel, a driving unit for the scan and data lines (fig. 7 elements 48 and 46) and a control unit (fig. 7 element 34) for controlling the driving unit to drive the liquid crystal panel pixels in order to produce an image. Inbar and Crawford also do not teach optical fibers for transmitting light from the light source to the display panel however, Fukuzawa teaches optical fibers (see fig. 3 elements 122-124) for transmitting light from the light source and an optical system (fig. 3 element 160) formed between the light source and optical fibers, in order to improve lighting efficiency. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill to use a set of pixel

driving crossing scan and data lines that form, control unit, and driving unit to drive each panel to create an image forming display and also combine a fiber optic light guild improve the amount of lighting efficiency.

Regarding claims 3 and 12, Fukawa teaches transparent electrodes in order to allow light to be passed through which is advantageous in a display (see fig 3 elements 119 and 121). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use a transparent electrode in order to let light pass through when in the path of the light.

Regarding claim 13 and 15, the primary reference teaches three panels one for each color (see column 4 line 54-column 5 line 12). Therefore each of the holographic patterns will be different. Since the first set of data and scan lines drives one panel and the second set does for another panel.

Regarding claims 16 and 17, the primary reference teaches liquid crystal (figs. 2a-2c and 3a-3d element 22) and a monomer (surrounding liquid crystal) arranged in a band shape. A band shaped liquid crystal will produce a band shaped interference pattern. A hologram, which the primary reference discloses, is defined as being formed by interference between laser reference light and irradiated light therefore all the new limitations of claim 16 and 17 are met by the primary reference.

Regarding claims 18 and 19, the only new limitation of claims 18 and 19 are optical fibers arranged corresponding to the respective pixels of the display panel and the fibers being the same as the number of pixels. Fukuzawa teaches fibers (fig. 3 elements 122-124) corresponding to the pixels (formed by fig. 3 elements 119 and 121)

and also shows the number of fibers being the same to maximize lighting / power efficiency (see abstract).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crawford et. al US Patent 5875012, Inbar et. al US Patent No. 5835173, and Fukawara as applied to claim 9 above and further in view of Ichikawa et. al US Patent No 6,078, 371. Crawford, Inbar, and Fukawara disclose all the limitations of claim 11 except a light source of a mercury lamp, a halide lamp or a white LED. Ichikawa teaches use of a mercury lamp and halide lamp illuminating to white light (column 11 lines 60-65), which has a full color spectrum of light. White LED's also will emit white light. Therefore, at the time of the invention it would have been obvious to one of ordinary skill to use either to gain a full color spectrum for the emitted light.

Conclusion

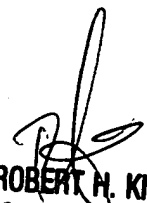
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-1562.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu
Examiner
AU 2871



ROBERT H. KIM
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